

LOCKOUT/TAGOUT/TRYOUT PLAN

BACKGROUND

What is a lockout/tagout/try procedure?

Lockout/tagout/tryout procedures (commonly known as “LOTO”) are typically designed to ensure that qualified persons isolate all energy sources before electrical work can be performed. Many such plans, including, the sample plan below, expand these plans to provide protection for the dangers of uncontrolled, unblocked, unlocked or unplanned releases of any forms of energy (such as movement of equipment, from electrical, hydraulic, pneumatic or other sources of power, or exposure to hazardous or toxic materials).

What requirements does MSHA impose on LOTO procedures?

MSHA’s standards distinguish between lockout/tagout where the risk is electrical, and risk from fail to block motion. The regulations themselves are general in nature. The relevant standards are 30 CFR 56/57.12006, 12016, 12016, and 14105.

What are the elements of an effective LOTO plan?

1. Training
2. Identification of equipment requiring lockout/tagout
3. Procedures for use of locks and tags
4. Procedures for removing locks and tags by persons other than the owner of the lock and tag.
5. Procedures for preventing risks that cannot be addressed with locks and tags.
6. Periodic review of the plan.

A sample LOTO plan is attached.

SAMPLE LOCKOUT/TAGOUT/TRYOUT PROCEDURE

1.0 PURPOSE

Any activity that requires employees to work on, in, or in close proximity to a potentially hazardous energy source or where there is a risk of unexpected operation or movement of equipment, release of energy, or release of hazardous materials, shall require the use of proper lockout, tagout and tryout devices and procedures as set out below.

2.0 SCOPE

All employees must follow this procedure when performing any work on, in, or in close proximity to a potentially hazardous energy source or where there is a risk of unexpected operation or movement of equipment, release of energy, or release of hazardous materials. This includes, but is not limited to:

- 2.1 When the employee must remove or bypass a guard or other safety device for cleaning, maintenance, repair, or clearing of jammed mechanisms.
- 2.2 When the employee must place any part of his or her body where it could be caught or crushed or struck by release of stored potential energy (springs, hydraulic pressure, steam, pneumatic pressure, objects that could fall), or by moving machinery parts.
- 2.3 When the employee is required to place any part of his body into a danger zone associated with electrical energy, hazardous substances, or other hazards that can be addressed by this procedure.

3.0 LIMITS OF SCOPE

This procedure does not apply to:

- 3.1 Trained electricians or other personnel authorized by [identify appropriate supervisor] to perform work on energized electrical circuits provided that continuity of service is essential, or the defect cannot be identified. Appropriate precautions, including proper PPE, must be observed.
- 3.2 Trained maintenance personnel authorized by [identify appropriate supervisor] to perform troubleshooting and adjustments to equipment where such work can be performed safely. Appropriate precautions, including proper PPE, must be observed.
- 3.3 [Add any specific procedures at the location.]

4.0 SUPERVISOR RESPONSIBILITY

- 4.1 Supervisors shall ensure that all employees have been appropriately trained on this procedure, in accordance with the site's training plan.
- 4.2 Supervisors shall comply with and enforce this procedure.
- 4.3 Supervisors shall assure that locks, tags, and other devices required for compliance with this procedure shall be provided to employees, maintained in an accessible location, and inspected periodically.
- 4.4 Supervisors shall issue locks to employees [identify method].¹

5.0 EMPLOYEE RESPONSIBILITY

- 5.1 All employees shall comply with this procedure
- 5.2 Employees shall obtain, maintain, and properly store the locks, tags, and other devices required to comply with this procedure.
- 5.3 Employees shall keep their locks in a readily accessible location.²
- 5.4 Locks issued for lockout/tagout purposes must only be used for compliance with this procedure. They may not be used for any other purpose or be removed from the site.

6.0 LOCKING DEVICES

- 6.1 Personal locks must be marked with the employee's name [indicate how, i.e. with a tag or otherwise]. The key for each lock shall be retained by the employee to whom the lock was issued.
- 6.2 Other locking devices shall be issued by [specify].
- 6.3 If an employee needs more than one lock in order to perform adequate lockout procedures for any planned work, additional locks shall be issued by [specify]. Each such lock shall be marked or tagged with the employee's name.

¹ Some operations permanently issue individual locks to each employee, while others issue locks on an as-needed basis. The specific procedure chosen should be set out here. One company issues special red locks that are only to be used for lockout/tagout.

² Some plans require certain categories of employees, such as maintenance personnel and electricians, to keep their locks with them at all times.

6.4 Department locks:

- 6.4.1 Department locks are locks maintained and applied by [Department supervisors or other appropriate title]. They shall be clearly marked or tagged with the name of the Department and the responsible supervisor.
- 6.4.2 Department locks shall only be used as specified in this procedure, and shall not be used as personal locks.
- 6.4.3 A Department lock must replace personal locks for all incomplete jobs or ongoing work continuing beyond the expiration of the current shift or crew assignment, until the next employee to work on the project is able to apply his or her personal lock.

6.5 When two or more employees work on the same equipment, each is responsible for attaching his or her own personal lock to the equipment disconnect or to the lock box (as described below).

6.6 Locks are to be locked on the disconnect when in the nonoperative (off) position.

6.7 Use of Lock Boxes:

- 6.7.1 A clear-faced lock box may be used by an individual locking out multiple pieces of equipment or when several individuals need to lock out one piece of equipment or lock out multiple pieces of equipment. Each individual piece of equipment must be fully locked, tagged and tried before placement of keys into the lock box.
- 6.7.2 All keys placed in the lock box must be identified with respect to the specific piece of equipment they are locking out.
- 6.7.3 A log for the lock box shall be maintained. Information on the log shall include identification of the piece of equipment, identification of the employee (name) who completed the lock out procedure, identification of the lock used, and that date. The log must be kept with the lock box to enable the information to be accessed by an individual who places his or her lock on the box.
- 6.7.4 If work continues into the next shift, or for an extended period, a Department lock of the department placing the locks in the lock

box must be placed on the lock box. If this procedure is not followed, lockout, tagout and tryout procedures must be repeated before any work may begin again.

- 6.7.5 Each individual employee's personal lock must be attached to the lock box before he or she can begin work on the relevant equipment.

6.8 Address all non-electrical hazards:

- 6.8.1 When there is a need to block equipment against potential motion, blocking materials and methods should be used in addition to lockout/tagout/tryout procedures, not as a substitute for them. Approved materials must be used for blocking.
- 6.8.2 Check for pneumatic, hydraulic or other fluid lines that might be energized in the operation. If they affect the area under maintenance, block and bleed, drain, or purge them to eliminate pressure, contents, or both.
- 6.8.3 Valves controlling these lines should then be locked, open or shut, depending upon their function and position in the line.
- 6.8.4 Check for mechanisms that are under spring tension, compression, or have stored energy. Block, chain, or clamp them in place. All stored energy must be controlled or eliminated.
- 6.8.5 Check for mechanisms or parts that normally cycle through a lower position and could drop. Either lower them to their lowest position or block their motion.

- 6.9 Interlocks are not an acceptable means of lockout. Each potential energy source must be individually locked, tagged and tried prior to repairs, cleaning, etc.

7.0 GENERAL PROCEDURE

- 7.1 Before beginning work on any equipment requiring lockout, the following steps must be completed:
 - 7.1.1 All personnel who will be affected by the shutdown of the relevant equipment shall be notified.
 - 7.1.2 The equipment is shut down by the operator. For electrical supply, pull the switch or starter disconnect while standing to the side and looking away from the box. Check to ensure knives are open, and

then check with an adequately rated voltage detecting device each phase conductor or circuit part to verify they are de-energized. Always check the voltage testing device on known voltage before and after checking the voltage.

- 7.1.3 Apply locks and tags to all relevant energy sources. This includes all primary and secondary electrical energy sources. Tags must include the words “Danger-Do Not Operate.”
- 7.1.4 Test (try out) the equipment to verify that that cannot be activated after the locks have been applied. Assistance may be needed from the operator of the equipment to ensure that all moving parts have been de-energized and are in a neutral condition. Make sure all persons are clear of the locked-out equipment before performing the test. If an operator is not available, contact [qualified electrical personnel] to verify the lockout was successful by checking the proper disconnect or motor starter for absence of voltage.
- 7.1.5 Determine if any blocking against motion is required, or if there are any other sources of stored energy or other hazards. Take proper steps to protect against all such hazards.
- 7.2 During work, the equipment shall remain properly locked out. If work continues past a shift change, or there is any other interruption in work, a Department lock shall be applied as indicated in 6.7.4 above.
- 7.3 After work has been completed:
 - 7.3.1 Make sure that all employees are clear and all tools and equipment have been removed.
 - 7.3.2 Individual locks and tags shall be removed by their owners. Department locks shall be removed only by an authorized employee from the relevant department. In any circumstance in which a lock must be removed by a person other than its owner, the Special Procedures in 8.0 below must be followed.
 - 7.3.3 The equipment may be re-energized when locks have been removed and personnel in the area have been informed that the equipment is being returned to service.

8.0 SPECIAL LOCK/TAG REMOVAL PROCEDURES

In some special circumstances, it may be necessary for a person other than the lock’s owner (or a department representative for a Department lock) to remove a lock. This

could include an emergency situation, or a situation in which an employee has left his lock on equipment after work was completed.

- 8.1 If an individual has left a lock on after completion of the work, every effort must be made to contact the individual to determine why the lock was left in place.
- 8.2 If the individual cannot be contacted, the lock only may be removed if [identify proper supervisor] determines that it is safe to remove the lock. [The supervisor] must personally check the equipment to make certain no one is working on it and that it can be safely operated before he or she removes the lock and tag.
- 8.3 Before the lock and tag can be removed the [additional person, such as operations manager] must provide approval.
- 8.4 Written verification of each step will be done using the attached check sheet. This check sheet will be kept on file for a period of one year.
- 8.5 No supervisor (or any other person) may remove any lock other than his or her own (or a Department lock if authorized) without following this procedure.
- 8.6 If a lock is removed under this procedure, special care must be taken in re-energizing the relevant equipment to ensure that it is safe to operate. Restart of the equipment shall be observed from a safe position by supervisory personnel.

9.0 TRAINING

Annual refresher training in lockout/tag out procedures is required. Training records shall be kept a minimum of 5 years.

10.0 CONTRACTORS

Contractors performing work on site must comply with this procedure.

Special Lock Removal Procedure Checksheet

Date _____

Name of Employee Whose Lock is to be Removed

Efforts to Contact Individual:

Name of Supervisor/Leader making Call _____

Phone number Called _____ Time _____ Successful: YES
NO

Phone number Called _____ Time _____ Successful: YES
NO

Reason Lock was removed

Supervisor/Leader personally checked the equipment to make certain no one is working on it and that it can be safely operated before removing the lock and tag.

Time Checks made _____

Time Lock and Tag Removed _____

Signature of Supervisor/Leader

NO CONTRACTOR MAY REMOVE A COMPANY EMPLOYEE'S LOCK AND TAG.